## **CLAIMS**

1. A medical device for the use in diagnosis and/or treatment of cardiovascular disease in the human body comprising:

a catheter having a proximal catheter end and a distal catheter end and defining a lumen extending from the distal catheter end towards the proximal catheter end, the catheter adapted for use in diagnosis and/or treatment of cardiovascular disease in the human body;

a first expandable and contractible, vessel-occluding element positioned distal of the distal catheter end; a second expandable and contractible, annular-space-blocking element positioned between the first expandable and contractible element and the proximal catheter end; and at least one of the first and second expandable and contractible elements comprising spaced apart structural members and a membrane associated therewith.

- 2. The medical device according to claim 1 wherein the second expandable and contractible element is positioned at and extends from the catheter distal end.
- 3. The medical device according to claim 1 wherein the second expandable and contractible element comprises a multiple wing, malecot type of expandable and contractible element.
- 4. The medical device according to claim 1 wherein the second expandable and contractible element comprises a membrane.
- 5. The medical device according to claim 1 wherein the second expandable and contractible element comprises a multiple wing, malecot type of expandable and contractible element and a membrane associated therewith.
- 6. The medical device according to claim 5 wherein the membrane covers the multiple wing, malecot type of expandable and contractible element.
- 7. The medical device according to claim 1 wherein the first expandable and contractible element comprises a braided element.
- 8. The medical device according to claim 1 wherein the first expandable and contractible element comprises spaced apart structural members.
- 9. The medical device according to claim 1 wherein the first expandable and contractible element comprises spaced apart structural members and a membrane associated therewith.

- 10. The medical device according to claim 1 wherein the second expandable and contractible element comprises spaced apart structural members.
- 11. The medical device according to claim 1 wherein the second expandable and contractible element comprises spaced apart structural members and a membrane associated therewith.
- 12. The medical device according to claim 1 wherein the first and second expandable and contractible elements comprises spaced apart structural members.
- 13. The medical device according to claim 1 wherein at least one of the first and second expandable and contractible elements comprises spaced apart structural members and a membrane associated therewith.
- The medical device according to claim 1 wherein the first and second expandable and contractible elements comprises spaced apart structural members and a membrane associated therewith.
- 15. The medical device according to claim 1 wherein the first expandable and contractible element comprises a braided element covered with a membrane.
- 16. The medical device according to claim 1 wherein the first expandable and contractible element comprises a native vessel sealing element.
- 17. The medical device according to claim 1 wherein a chosen one of the first and second expandable and contractible elements is funnel-shaped when in an expanded state.
- 18. The medical device according to claim 1 wherein a chosen one of the first and second expandable and contractible elements has a longitudinally-extending opening to permit material to pass therethrough.
- 19. The medical device according to claim 1 wherein the first expandable and contractible element is movable relative to the second expandable and contractible element.
  - 20. The medical device according to claim 1 wherein the membrane is impermeable.
  - 21. The medical device according to claim 1 wherein the membrane is elastomeric.
- 22. A medical device for the use in diagnosis and/or treatment of cardiovascular disease in the human body comprising:

a catheter having a proximal catheter end and a distal catheter end and defining a lumen extending from the distal catheter end towards the proximal catheter end, the catheter adapted for use in diagnosis and/or treatment of cardiovascular disease in the human body;

a first expandable and contractible, vessel-occluding element positioned distal of the distal catheter end;

a second expandable and contractible, annular-space-blocking element positioned between the first expandable and contractible element and the proximal catheter end; and

a chosen one of the first and second expandable and contractible elements being having a funnel-shaped surface, when in an expanded state, and having a longitudinally-extending opening to permit material to pass therethrough for receipt of material.

- 23. The medical device according to claim 22 wherein the second expandable and contractible element is positioned at and extends from the catheter distal end.
- 24. The medical device according to claim 22 wherein the second expandable and contractible element comprises a multiple wing, malecot type of expandable and contractible element.
- 25. The medical device according to claim 22 wherein the second expandable and contractible element comprises a membrane.
- 26. The medical device according to claim 22 wherein the second expandable and contractible element comprises a multiple wing, malecot type of expandable and contractible element and a membrane associated therewith.
- 27. The medical device according to claim 26 wherein the membrane covers the multiple wing, malecot type of expandable and contractible element.
- 28. The medical device according to claim 22 wherein the first expandable and contractible element comprises a braided element.
- 29. The medical device according to claim 22 wherein the first expandable and contractible element comprises spaced apart structural members.
- 30. The medical device according to claim 22 wherein the first expandable and contractible element comprises spaced apart structural members and a membrane associated therewith.
- 31. The medical device according to claim 22 wherein the second expandable and contractible element comprises spaced apart structural members.
- 32. The medical device according to claim 22 wherein the second expandable and contractible element comprises spaced apart structural members and a membrane associated therewith.

- 33. The medical device according to claim 22 wherein at least one of the first and second expandable and contractible elements comprises spaced apart structural members.
- 34. The medical device according to claim 22 wherein the first and second expandable and contractible elements comprises spaced apart structural members.
- 35. The medical device according to claim 22 wherein at least one of the first and second expandable and contractible elements comprises spaced apart structural members and a membrane associated therewith.
- 36. The medical device according to claim 22 wherein the first and second expandable and contractible elements comprises spaced apart structural members and a membrane associated therewith.
- 37. The medical device according to claim 22 wherein the first expandable and contractible element comprises a braided element covered with a membrane.
- 38. The medical device according to claim 22 wherein the first expandable and contractible element comprises a native vessel sealing element.
- 39. The medical device according to claim 22 wherein the first expandable and contractible element is movable relative to the second expandable and contractible element.
- 40. The medical device according to claim 22 wherein at least one of the first and second expandable and contractible elements comprises a balloon.
- 41. A medical device for the use in diagnosis and/or treatment of cardiovascular disease in the human body comprising:
- a catheter having a proximal catheter end and a distal catheter end and defining a lumen extending from the distal catheter end towards the proximal catheter end, the catheter adapted for use in diagnosis and/or treatment of cardiovascular disease in the human body;
  - a support element extending distally of the distal catheter end;
- a first expandable and contractible, vessel-occluding element mounted to the support element and positioned distal of the distal catheter end;
- a second expandable and contractible, annular-space-blocking element mounted to the catheter and positioned between the first expandable and contractible element and the proximal catheter end;
- a chosen one of the first and second expandable and contractible elements being having a funnel-shaped surface, when in an expanded state, and having a longitudinally-extending opening to permit material to pass therethrough for receipt of material; and

at least one of the first and second expandable and contractible elements comprising spaced apart structural members and a membrane associated therewith.

- 42. The medical device according to claim 41 wherein a portion of the support element is housed within the catheter.
- 43. The medical device according to claim 41 wherein a portion of the support element is slidably housed within the catheter.
- 44. The medical device according to claim 41 wherein the first expandable and contractible element comprises a braided element.
- 45. The medical device according to claim 41 wherein the first expandable and contractible element comprises a braided element covered with a membrane.
- 46. The medical device according to claim 41 wherein the first expandable and contractible element comprises a native vessel sealing element.
- 47. A medical device for the use in diagnosis and/or treatment of cardiovascular disease in the human body comprising:
- a catheter having a proximal catheter end and a distal catheter end and defining a lumen extending from the distal catheter end towards the proximal catheter end, the catheter adapted for use in diagnosis and/or treatment of cardiovascular disease in the human body;
- a first expandable and contractible, vessel-occluding element positioned distal of the distal catheter end; and
- a second expandable and contractible, annular-space-blocking device-occluding element positioned between the first expandable and contractible element and the proximal catheter end.
- 48. The medical device according to claim 47 wherein the second expandable and contractible element is positioned at and extends from the catheter distal end.
- 49. The medical device according to claim 47 wherein the second expandable and contractible element comprises a multiple wing, malecot type of expandable and contractible element.
- 50. The medical device according to claim 47 wherein the second expandable and contractible element comprises a membrane.
- 51. The medical device according to claim 47 wherein the second expandable and contractible element comprises a multiple wing, malecot type of expandable and contractible element and a membrane associated therewith.

- 52. The medical device according to claim 51 wherein the membrane covers the multiple wing, malecot type of expandable and contractible element.
- 53. The medical device according to claim 47 wherein the first expandable and contractible element comprises a braided element.
- 54. The medical device according to claim 47 wherein the first expandable and contractible element comprises spaced apart structural members.
- 55. The medical device according to claim 47 wherein the first expandable and contractible element comprises spaced apart structural members and a membrane associated therewith.
- 56. The medical device according to claim 47 wherein the second expandable and contractible element comprises spaced apart structural members.
- 57. The medical device according to claim 47 wherein the second expandable and contractible element comprises spaced apart structural members and a membrane associated therewith.
- 58. The medical device according to claim 47 wherein at least one of the first and second expandable and contractible elements comprises spaced apart structural members.
- 59. The medical device according to claim 47 wherein the first and second expandable and contractible elements comprises spaced apart structural members.
- 60. The medical device according to claim 47 wherein at least one of the first and second expandable and contractible elements comprises spaced apart structural members and a membrane associated therewith.
- 61. The medical device according to claim 47 wherein the first and second expandable and contractible elements comprises spaced apart structural members and a membrane associated therewith.
- 62. The medical device according to claim 47 wherein the first expandable and contractible element comprises a braided element covered with a membrane.
- 63. The medical device according to claim 47 wherein the first expandable and contractible element comprises a native vessel sealing element.
- 64. The medical device according to claim 47 wherein a chosen one of the first and second expandable and contractible elements is funnel-shaped when in an expanded state.

- 65. The medical device according to claim 47 wherein a chosen one of the first and second expandable and contractible elements has a longitudinally-extending opening to permit material to pass therethrough.
- 66. The medical device according to claim 47 wherein the first expandable and contractible element is movable relative to the second expandable and contractible element.
- 67. The medical device according to claim 47 wherein the second expandable and contractible, device-occluding element comprises an artificial vessel-occluding element.
- 68. The medical device according to claim 47 wherein at least one of the first and second expandable and contractible elements comprises a balloon.
- 69. A medical device for the use in diagnosis and/or treatment of cardiovascular disease in the human body comprising:

a catheter having a proximal catheter end and a distal catheter end and defining a lumen extending from the distal catheter end towards the proximal catheter end, the catheter adapted for use in diagnosis and/or treatment of cardiovascular disease in the human body;

an expandable and contractible, annular-space-blocking element carried by the catheter at or near the distal catheter end;

the expandable and contractible element having a funnel-shaped surface, when in an expanded state, for receipt of material; and the expandable and contractible element comprising spaced apart structural members and a membrane associated therewith.

- 70. The medical device according to claim 69 wherein the membrane is an impermeable membrane.
  - 71. The medical device according to claim 69 wherein the membrane is elastomeric.
- 72. The medical device according to claim 69 wherein the expandable and contractible element comprises a braided element.
- 73. The medical device according to claim 69 wherein the expandable and contractible element comprises a braided element covered with the membrane.
- 74. The medical device according to claim 69 wherein the expandable and contractible element comprises a native vessel sealing element.